IN THE CLAIMS

Please amend claims 3, 4, and 25.

1. (Original) A fluid ejection device comprising:

an internal power supply path;

a power regulator providing an offset voltage from the internal power supply path voltage, the power regulator including a self-calibration circuit adapted to determine a regulation band of the power regulator defined by a lower set point offset voltage and an upper set point offset voltage;

a group of nozzles;

a corresponding group of firing resistors; and

a corresponding group of switches controllable to couple a selected firing resistor of the group of firing resistors between the internal power supply path and the offset voltage to thereby permit electrical current to pass through the selected firing resistor to cause a corresponding selected nozzle to fire.

2. (Original) The fluid ejection device of claim 1 wherein the power regulator includes:

a digital-to-analog converter (DAC) coupled to the internal power supply path and configured to receive a digital offset command representing a desired offset voltage and to provide an analog offset voltage from the internal power supply path voltage.

3. (Currently Amended) The fluid ejection device of claim ~~2~~1 further comprising:

wherein the power regulator further includes a feedback amplifier having a first input coupled to ~~the analog~~an input offset voltage, a second input coupled to a feedback line, and an output coupled to a drive line;

wherein a selected switch corresponding to a selected firing resistor has a control gate controlled by the drive line;

wherein ~~a~~the selected firing resistor of the group of firing resistors includes a first terminal and a second terminal coupled to the feedback line, ~~which~~ wherein the drive line

provides the offset voltage to the feedback line and the second terminal of the selected firing resistor~~; and~~through the selected switch.

~~wherein a selected switch corresponding to the selected firing resistor has a control gate controlled by the drive line.~~

4. (Currently Amended) The fluid ejection device of claim 3 wherein the self-calibrating circuit includes:

a regulation detector configured to compare the ~~analog~~input offset voltage at the first input of the ~~feebaek~~feedback amplifier and the offset voltage on the feedback line and provide an in regulation signal which is activated based on the power regulator being in regulation.

5. (Original) The fluid ejection device of claim 3 further comprising:

an internal power ground;

wherein the first terminal of the selected firing resistor is coupled to the internal power supply path; and

wherein the selected switch is coupled between the second terminal of the firing resistor and the internal power ground.

6. (Original) The fluid ejection device of claim 3 wherein the selected switch is coupled between the internal power supply path and the first terminal of the selected firing resistor.

7. (Original) The fluid ejection device of claim 2 wherein the self-calibration circuit includes:

a set point DAC up/down counter storing a set point offset voltage digital value which is provided as the digital offset command.

8. (Original) The fluid ejection device of claim 7 wherein the self-calibration circuit includes:

a set point controller receiving a fire pulse, a start calculation signal, and an in regulation signal which is activated based on the power regulator being in regulation, the set

point controller activating a count signal to the set point DAC up/down counter at every received fire pulse in a first set point calculation operation occurring between a first active start calculation signal and a second active start calculation signal unless an active in regulation signal has been received during the first set point calculation operation, wherein an activated count signal causes the set point DAC up/down counter to increment or decrement.

9. (Original) The fluid ejection device of claim 8 wherein the set point controller inhibits the count signal from being activated once an active in regulation signal is received during the first set point calculation operation until the second active start calculation signal is received.

10. (Original) The fluid ejection device of claim 8 wherein the first set point calculation operation determines the lower set point offset voltage.

11. (Original) The fluid ejection device of claim 8 wherein the first set point calculation operation determines the upper set point offset voltage.

12. (Original) The fluid ejection device of claim 7 wherein the set point DAC up/down counter receives a load signal and data lines, wherein a preset set point offset voltage digital value is loaded into the set point DAC up/down counter via the data lines in response to an active load signal.

13. (Original) The fluid ejection device of claim 12 wherein the set point DAC up/down counter receives a count signal which when activated causes set point DAC up/down counter to increment or decrement the set point offset voltage digital value.

14. (Original) The fluid ejection device of claim 13 wherein the set point DAC up/down counter receives an up/down signal which determines whether the set point DAC up/down counter increments or decrements the set point offset voltage digital value.

15. (Original) The fluid ejection device of claim 12 wherein the set point DAC up/down counter receives a read signal and is responsive to an active read signal to provide the set point offset voltage digital value on the data lines.

16. (Original) A fluid ejection assembly comprising:

at least one fluid ejection device, each fluid ejection device including:

an internal power supply path;

a power regulator providing an offset voltage from the internal power supply path voltage, the power regulator including a self-calibration circuit adapted to determine a regulation band of the power regulator defined by a lower set point offset voltage and an upper set point offset voltage;

a group of nozzles;

a corresponding group of firing resistors; and

a corresponding group of switches controllable to couple a selected firing resistor of the group of firing resistors between the internal power supply path and the offset voltage to thereby permit electrical current to pass through the selected firing resistor to cause a corresponding selected nozzle to fire.

17. (Original) The fluid ejection assembly of claim 16 wherein the at least one fluid ejection device includes multiple fluid ejection devices.

18. (Original) A method of self-calibrating power delivery control to firing resistors in an fluid ejection device comprising:

coupling a selected firing resistor of a group of firing resistors between an internal power supply path and an offset voltage from the internal power supply path voltage to cause electrical current to pass through the selected firing resistor to cause a corresponding selected nozzle to fire; and

determining a power regulation band defined by a lower set point offset voltage and an upper set point offset voltage.

19. (Original) The method of claim 18 wherein determining the power regulation band further comprises:

providing an in regulation signal which is activated based on being in the power regulation band.

20. (Original) The method of claim 18 wherein providing the offset voltage includes:

providing a digital offset command representing a desired offset voltage; and

converting the digital offset command to an analog offset voltage from the internal power supply path voltage.

21. (Original) The method of claim 20 wherein determining the power regulation band further comprises:

storing a set point offset voltage digital value; and

providing the set point offset voltage digital value as the digital offset command.

22. (Original) The method of claim 21 wherein determining the power regulation band further comprises:

providing a fire pulse;

providing a start calculation signal;

providing an in regulation signal which is activated based on being in the power regulation band;

activating a count signal at every fire pulse in a first set point calculation operation occurring between a first active start calculation signal and a second active start calculation signal unless an active in regulation signal has been provided during the first set point calculation operation; and

incrementing or decrementing the set point offset voltage digital value in response to every activated count signal in the first set point calculation operation.

23. (Original) The method of claim 22 further comprising:

reading the set point offset voltage digital value.

24. (Original) A self-calibrating power regulator in an fluid ejection device comprising:

a power delivery control loop providing an offset voltage from an internal power supply path voltage, wherein a selected firing resistor in the fluid ejection device is coupled between the internal power supply path and the offset voltage to cause electrical current to pass through the selected firing resistor to cause a corresponding selected nozzle to fire; and

a self-calibration circuit adapted to determine a regulation band of the power regulator defined by a lower set point offset voltage and an upper set point offset voltage.

25. (Currently Amended) The self-calibrating power regulator of claim ~~254~~ wherein the self-calibration circuit includes:

a set point up/down counter storing a set point offset voltage digital value representing a desired offset voltage, wherein the power delivery control loop is responsive to the offset voltage digital value to provide the offset voltage; and

a set point controller receiving a fire pulse, a start calculation signal, and an in regulation signal which is activated based on the power regulator being in regulation, the set point controller activating a count signal to the set point up/down counter at every received fire pulse in a first set point calculation operation occurring between a first active start calculation signal and a second active start calculation signal unless an active in regulation signal has been received during the first set point calculation operation, wherein an activated count signal causes the set point up/down counter to increment or decrement.